REMARKS

Reexamination and reconsideration in light of the foregoing amendment and following remarks is respectfully requested.

Claims 1-20 are pending in this application. Claims 2-19 have been amended and new claim 20 has been added. No new matter has been added to the application.

Applicants note the Examiner's consideration of the information cited in the Information Disclosure Statement filed April 17, 2001 as acknowledged in the Office Action Summary. Applicants further note the Examiner's acknowledgment of Applicants' claim for foreign priority under 35 U.S.C. § 119 and receipt of the certified priority document. Also, Applicants note the Examiner's acceptance of the drawings filed on April 17, 2001.

Objections

The Examiner has objected to the specification because it lacks an Abstract of the Disclosure. An Abstract was filed with the application papers. A copy of the Abstract as filed along with the return receipt card indicating that the application as submitted to the Office on April 17, 2001 included an Abstract are attached to this response.

Claims 5-7, 10 and 13-17 stand objected to because the references to the various hydrotreating steps in claim 5, 6, 13 and 16 lack antecedent basis. Claims 5 -7, 10 and 13-17 have been amended as follows:

Claim 5: "fourth hydrotreating step" to --third hydrotreating step--.

Claim 6: "fifth hydrotreating step" to --second hydrotreating step--.

Claim 7: "third separation step" to --first separation step--.

Claim 10: "fourth hydrotreating step" to --third hydrotreating step--.

Claim 13: "second hydrotreating step" to --first hydrotreating step--.

Claim 14: "third hydrotreating step" to --second hydrotreating step--.

Claim 15: "forth hydrotreating step" to --second hydrotreating step--.

Claim 16: "fifth hydrotreating step" to --hydrotreating step-- and "first hydrotreating step" to --hydrotreating step--.

Claim 17: "third separation step" to --separation step-- and "fifth hydrotreating step" to --hydrotreating step--.

It is believed that by these amendments and providing a copy of the Abstract as filed that the objections are overcome. It is respectfully requested that the objections be reconsidered and withdrawn.

Rejections Under 35 U.S.C. § 112

Claims 7 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because claim 7 incorrectly refers to a hydrotreating step as the "fifth separation step" and that the "last separation step" in claim 9 is unclear. Claim 7 has been amended to recite "a first separation step of separating said heavy oil matter produced in said second hydrotreating step into a light oil matter and a heavy oil matter." Claim 9 has been amended to change "last separation step" to --first separation step--. It is believed that by these amendments the rejections are overcome. It is respectfully requested that the rejections be reconsidered and withdrawn.

Rejection Under 35 U.S.C. § 102

Claim 18 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Japanese abstract JP 06207179A. According to the Examiner, the "reference discloses a gas turbine fuel oil that has a sulfur concentration of 470 ppm, contains no detectable alkaline metal, alkaline earth metal, vanadium or lead, and as a viscosity or [sic, of] 0.3 cSt at 100 °C." Applicants respectfully traverse this rejection.

The claim requires the gas turbine fuel oil obtained have the following properties: 4 cSt or less in viscosity at 100 °C, containing alkaline metal in an amount of 1 ppm or less, lead in an amount of 1 ppm or less, V in an amount of 0.5 ppm or less, Ca in an amount of 2 ppm or less and sulfur in an amount of 500 ppm or less. Contrary to the Examiner's position, the Japanese reference does not disclose that the fuel oil does not have detectable alkaline metal, lead, vanadium, and calcium. The disclosure is silent as to whether these metals are absent. Also, the abstract does not disclose the gas turbine fuel oil is 4 cSt or less in viscosity at 100 °C.

For the foregoing reasons, the reference relied upon by the Examiner fails to present a *prima facie* case of anticipation of claim 18 over the Japanese abstract.

Rejection Over Gould

Claims 1-5 and 8-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Gould (U.S. Patent No. 3,855,113). According to the Examiner, the Gould reference discloses a process for converting a feed oil that "comprises separating the oil in an atmospheric distillation step to produce a light fraction and a residue ... [which] is then further separated in a vacuum distillation step to produce a light and heavy fraction." The Examiner made findings that the

"light fraction produced in the atmospheric distillation step and the light fraction produced in the vacuum distillation step are both subjected to a common hydrotreating step," that the "heavy fraction produced in the vacuum distillation step is subjected to a thermal cracking process," and that this "heavy fraction produced in the vacuum distillation step can also be subjected to a hydrotreatment process." The Examiner concedes, however, that the "Gould reference does not disclose the characteristics of the fuel oil obtained, does not disclose the yields, and does not disclose hydrotreating a light oil produced in the thermal cracking step" and that the "Gould reference also does not disclose the atmospheric distillation of the fuel oil as in claim 8 and does not disclose the use of the produced oil as a fuel oil for a boiler." Despite this deficiency, the Examiner concluded that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consists of a wide boiling range of materials." The Examiner further concluded that the "disclosed separations and any additional separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose including a fuel oil" and that "[i]t also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by hydrotreating the light oil produced in the thermal cracking step because Gould discloses that hydrotreating is performed to remove impurities such as sulfur." According to the Examiner, "if the light oil still contains impurities, one would hydrotreat the oil in order to purify the oil."

Applicants respectfully traverse the rejection. It is Applicants' position that the Examiner has not presented any evidence or cogent scientific reasoning from the teachings of Gould that would have led to his conclusion of unpatentability. The Examiner has merely concluded that the invention would be obvious without any reasoning as to how a person having ordinary skill in the art would have arrived at the claimed invention, i.e., the characteristics of the fuel oil obtained and how such a person would have been led to hydrotreating the light oil produced in the thermal cracking step. The conclusion that the separations of Gould "would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose including a fuel oil" is nothing more than a conclusion, without any scientific or cogent reasoning from the teachings of Gould as to how the Examiner arrived at the conclusion. Moreover, the Examiner reasons that a person having ordinary skill in the art would have "modified the process of Gould by hydrotreating the light oil produced in the thermal cracking step because Gould discloses that hydrotreating is performed to remove impurities such as sulfur." There is no teaching or suggestion in Gould that would have led a person skilled in the art to make such a modification. The suggestion did not come from Gould, but from Applicants' disclosure through hindsight. It is well-established that hindsight shall not form the basis of a conclusion of obviousness under 35 U.S.C. § 103. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicants' disclosure. *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). As the Federal Circuit stated in *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996):

> To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction - an illogical and inappropriate process by which to determine patentability. . . . The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made. [citations omitted]

According to the Examiner, "if the light oil still contains impurities, one would hydrotreat the oil in order to purify the oil." However, Gould is directed to treating atmospheric residuum and vacuum residuum (col. 1, lines 6-8), and not gas turbine oil from the light oil fractions. Gould does not identify effluents 16 and18 as being gas turbine oil, let alone that the effluents have the gas turbine oil properties set forth in claim 1, i.e., a gas turbine fuel oil having 4 cSt or less in viscosity at 100 °C, and containing alkaline metal in an amount of 1 ppm or less, lead in an amount of 1 ppm or less, V in an amount of 0.5 ppm or less, Ca in an amount of 2 ppm or less and sulfur in an amount of 500 ppm or less, and being produced with yields of 65% or more based on the feed oil. Further, a person having ordinary skill in the art would not have been motivated to modify Gould to remove impurities from the light oil because there is no reason in Gould to purify the effluents from hydroconverting zones 9 and 12.

The Gould reference at col. 3, lines 32-44 discloses that the effluents from the hydroconverting zones 9, 11 and 12 are fed to the steam boilers 13, 14 and 15, respectively, to generate steam, and that the steam is used to generate superheated steam in the steam generator 22. There is no disclosure to recover the effluents as a gas turbine oil. The hydrocarbon made by hydrofining vacuum residuum and the aforesaid superheated steam are then fed to the steam-cracking zone. Further, Gould's objective is to remove sulfur from the atmospheric and vacuum

residuums, and not from the light oil fraction. The atmospheric and vacuum residuums are passed through a separate hydrorefining zone before the steam cracking zone and the fractionation column. In the present invention, only the light oil is being hydrotreated, not the residuums.

The gas turbine fuel oil is the only one target, the present invention. Because this is the only objective, the process has the advantage of having all the fractions (light oil) fractionated by the atmospheric distillation subjected to the hydrotreating step. In the conventional process as disclosed by Gould, the atmospheric distillation step would provide plurality of light oil products, namely, light oils with plural boiling ranges which are generally separately taken out and separately subjected to hydrotreating under conditions according to respective light oils. If, for example, it is desired to obtain gasoline, kerosene, light oil, and so on as products as in the general oil refinery, it is necessary to provide facilities for each product because the products are different not only in boiling point, but also in allowable level of sulfate, which leads to different operational conditions such as temperature, pressure, catalyst, and so on in the hydrotreating step.

In the present invention, all of the light oil obtained by the atmospheric distillation is subjected to hydrotreating step to be converted into the gas turbine fuel oil. This is not described or suggested by Gould. or in any other reference cited by the Examiner. Further, the light oil obtained from the atmospheric residuum being subjected to hydrotreating to produce the gas turbine fuel oil. After the vacuum distillation step, Gould does not disclose or suggest hydrotreating the light oil fraction alone, but subjecting a mixture of light oil and heavy

atmospheric gas oil to hydrotreating. There is no teaching in Gould that hydrotreating such a mixture will result in a gas turbine oil having the properties and yield as recited in claim 1.

Claims 2 to 5 are dependent on claim 1 and thus naturally have patentability. Claims 2 and 4 require that the first hydrotreating step and the second hydrotreating step be executed as a common step. This feature is not disclosed or suggested by Gould. Further, referring to claims 3 and 5, the gas turbine fuel oil is produced from the heavy oil obtained in the first separation step via the steps described in claims 3 and 5, and the group of steps combined with the steps of claim 1 is not described in any cited reference.

As for claims 8, this clam is dependent on claim 1 and further requires that the gas turbine fuel oil be further subject to atmospheric distillation to provide light gas turbine fuel oil and heavy gas turbine fuel oil heavier than the light gas turbine fuel oil. A further atmospheric distillation step is not disclosed or suggested by Gould. The Examiner concedes that Gould fails to teach this feature of the invention. However, the Examiner has not presented any cogent scientific reasoning from the teaching of Gould that would have motivated a person having ordinary skill in the art to modify Gould to add the further atmospheric distillation step.

As for claims 9 and 10, these claims require that the heavy oil matter produced be used as fuel oil for a boiler. This feature also is not disclosed or suggested by Gould and the Examiner has not presented any cogent scientific reasoning from the teaching of Gould as to why a person having ordinary skill in the art would have been motivated to use the heavy oil matter as fuel for a boiler.

For all of the foregoing reasons, the Examiner has not made out a *prima facie* case of obviousness. Accordingly, it is respectfully requested that the rejection of claims 1-5 as being unpatentable under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

Rejection Over Gould and Yoshinaga

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gould (U.S. Patent No. 3,855,113) in view of Yoshinaga et al. (U.S. Patent No. 4,348,288). According to the Examiner, "the Gould reference does not disclose the desalting step." For this deficiency, the Examiner relies on Yoshinaga as disclosing "the need for desalting oils." From this teaching, the Examiner concludes that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by including a desalting step as suggested by Yoshinaga because corrosion and erosion problems due the presence of impurities in the oil will he eliminated." Applicants respectfully traverse this rejection.

Claim 11 is a dependent claim and is dependent on claim 1. For reasons disclosed, *supra*, Gould does not disclose or suggest the invention recited in claim 1. Yoshinaga does not make up for the deficiencies of Gould. Furthermore, the Yoshinaga patent discloses desalting fuel oil, and not feed oil, i.e., crude oil. Gould does not disclose atmospheric distillation of fuel oil. Therefore, a person having ordinary skill in the art would not have been motivated to modify the process of Gould to include a desalting step to remove alkali metal salts as suggested by Yoshinaga.

For the foregoing reasons, the Examiner has not shown that the invention recited by claim 11 is *prima facie* obvious over the combined teachings of Gould and Yoshinaga et al. Accordingly, it is respectfully requested that the rejection of claim 11 be reconsidered and withdrawn.

Rejection Over Gould and Liu

Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Gould (U.S. Patent No. 3,855,113) in view of Liu (U.S. Patent No. 5,958,365). According to the Examiner, Gould "does not disclose producing hydrogen by oxidizing the feed oil." For this deficiency, the Examiner relies on Liu as disclosing "the production of hydrogen from a heavy oil and then using the hydrogen in hydrotreating zones." From this finding, the Examiner concludes that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Gould by producing hydrogen as suggested by Liu because a cheap source of hydrogen will be provided thereby improving the economics of the process." Applicants respectfully traverse this rejection.

Claim 12 is a dependent claim and is dependent on claim 1. For reasons disclosed, *supra*, Gould does not disclose or suggest the invention recited in claim 1. Liu does not make up for the deficiencies of Gould. For the foregoing reason, the Examiner has not shown that the invention recited by claim 12 is *prima facie* obvious over the combined teachings of Gould and Liu. Accordingly, it is respectfully requested that the rejection of claim 11 be reconsidered and withdrawn.

Rejection Over Corneil and Louie

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Corneil et al. (U.S. Patent No. 2,775,544) in view of Louie et al. (U.S. Patent No. 4,990,242). According to the Examiner, "the Corneil reference discloses a process for converting a hydrocarbon" and "[t]he process comprises distilling the hydrocarbon is first separation zone to produce a light oil and a residue" which is "hydrotreated and then subjected to further separation by deasphalting." The Examiner concedes that Corneil "does not disclose the hydrotreating of the light oil produced in the first separation zone" and that it "also does not disclose the fuel oil characteristics or yield." For these deficiencies the Examiner relies on Louie et al. as disclosing that "the hydrodesulfurization of various fractions of hydrocarbons recovered in a separation step." From this teaching, the Examiner concludes that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Corneil by hydrotreating the light oil recovered in the first separation zone as suggested by Louie because, from the teachings of Louie, it is clear that the sulfur compounds would remain in the light fraction of Corneil" and that "one would hydrotreat the light oil of Corneil in a manner as disclosed in Louie in order to produce a light oil having fewer impurities." Applicants respectfully traverse this rejection.

Claim 6 requires (i) atmospheric distillation of subjecting crude oil to separate said crude oil into light oil fraction and an atmospheric residue oil fraction, (ii) a hydrotreating the light oil fraction with pressurized hydrogen in the presence of a catalyst to remove impurities and to produce gas turbine fuel oil, and (iii) hydrotreating the atmospheric residue oil fraction with

pressurized hydrogen in the presence of a catalyst that results in removing impurities from the residue oil and cracking a part of a heavy oil matter in the residue to form a gas turbine fuel oil. The gas turbine fuel oil obtained from the hydrotreating steps has the following properties: 4 cSt or less in viscosity at 100 °C, containing alkaline metal in an amount of 1 ppm or less, lead in an amount of 1 ppm or less, V in an amount of 0.5 ppm or less, Ca in an amount of 2 ppm or less and sulfur in an amount of 500 ppm or less, and being produced with yields of 65% or more based on said feed oil.

Corneil describes and shows a process wherein the atmospheric residuum is fed via the line **17** into the hydro-desulphurization zone **18** where the residuum is desulphurized. The desulphurized product is distilled in the distillation region **21** to obtain a light oil fraction and residue. In short, only desulphurization of the atmospheric residuum, and not the light oil fraction, is performed in the hydro-desulphurization zone **18**. The desulphurized residuum is further fractionated in the distillation region **21**.

In the distillation region **12** disclosed by Corneil, crude oil is fractionated and a light oil is taken out of the column top portion (via line **14**). As admitted by the Examiner, Corneil does not disclose or suggest hydrotreating the light oil fraction from the atmospheric distillation zone as required by claim 6. Kerosene and heating oil are taken out of the side-cut lines (lines **15** and **16**) respectively. Louie et al. does not make up for this deficiency.

Louie et al. describe fractionating a petroleum distillate feedstock and hydrotreating the various fractions of the distillate. Louie et al. does not disclose hydrotreating a light oil fraction to form a gas turbine fuel as required by claim 6. Accordingly, the teaching of Louie et al. would

not have motivated a person having ordinary skill in the art to modify Corneil to hydrotreat the light oil fraction via line **14**. In addition the feedstock in Louie is not crude oil, but "virgin petroleum feed stock or a distillate thereof ... which may be advantageously ... include light catalytic cracker oil (LCCO) ..." (col. 3, lines 52-58). Furthermore, neither Corneil nor Louie et al. disclose that the light fractions are a gas turbine fuel, let alone that the fraction has the properties required by claim 6. As for claim 7, neither of the references relied upon by the Examiner disclose or a suggest an additional step further separating light oil from the heavy oil matter before the second hydrotreating step.

For the foregoing reasons, the Examiner has not shown that the invention recited by claims 6 and 7 is *prima facie* obvious over the combined teachings of Corneil and Louie et al. Accordingly, it is respectfully requested that the rejection of claims 6 and 7 be reconsidered and withdrawn.

Rejection over Morel

Claims 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Morel et al.(U.S. Patent No. 6,007,703). According to the Examiner, Morel "discloses a process for converting a hydrocarbon ... [which] comprises separating the hydrocarbon in an atmospheric distillation zone to produce an atmospheric distillate and an atmospheric residue." Further, according to the Examiner, "[t]he atmospheric residue is ... passed to a vacuum distillation zone from which a vacuum distillate and a vacuum residue are recovered ..., [the] vacuum residue is ... passed to a deasphalting zone to produce a deasphalted hydrocarbon (i.e., light fraction) and a residue (i.e., heavy fraction), ... [and the] deasphalted hydrocarbon and the vacuum distillate are

then subjected to a hydrotreatment." The Examiner made a finding that the "vacuum residue may also be passed to a hydrotreating zone." However, the Examiner conceded that Morel "does not disclose the characteristics of the fuel oil or the yield." Despite this deficiency, the Examiner concluded that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consists of a wide boiling range of materials" and that the "disclosed separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose." Applicants respectfully traverse this rejection.

Claim 13 requires (i) a first separation step, by vacuum distillation, solvent deasphalting, thermal cracking and steam distillation, of separating heavy feed oil consisting of atmospheric residue oil obtained by atmospheric distillation of crude oil and/or heavy oil into a light oil matter and a heavy oil matter; and then (ii) subjecting the light oil matter to hydrotreating with pressurized hydrogen in the presence of a catalyst, to produce a gas turbine fuel oil having the following properties: 4 cSt or less in viscosity at 100 °C, containing alkaline metal in an amount of 1 ppm or less, lead in an amount of 1 ppm or less. V in an amount of 0.5 ppm or less. Ca in an amount of 2 ppm or less and sulfur in an amount of 500 ppm or less, and being produced with yields of 40% or more based on said heavy feed oil. Morel discloses a process for refining heavy hydrocarbon fractions comprising the steps of first hydrotreating the hydrocarbon feed (heavy fraction) to reduce the metal and sulfur content in the hydrocarbon feed, (ii) atmospheric distilling the hydrotreated effluent into an atmospheric distillate and an atmospheric residue, (iii)

vacuum-distilling the atmospheric residue into a vacuum distillate and a vacuum residue, (iv) deasphalting the vacuum residue, and (v) hydrotreating the deasphalted hydrocarbon. Morel further discloses that it is preferable that at least a portion of the vacuum distillate obtained by the vacuum distillation step (iii) is mixed with the deasphalted hydrocarbon in step (iv) before the hydrotreating step (v).

Morel is deficient because it does not disclose that the vacuum distillate is a gas turbine fuel, let alone that the distillate has the properties required by claim 13. The reference teaches away from the present invention because it is preferred that the vacuum distillate be mixed with the effluent from the deasphalting step. Also, Morel does not disclose or suggest subjecting the vacuum distillate to hydrotreating with pressurized hydrogen in the presence of a catalyst as required by claim 13.

In the Morel's process, the hydrotreated step is before atmospheric distillation and vacuum distillation steps. In other words, this technique is directed to obtain products such as gasoline and gas oil, on the precondition that hydrotreating is performed first. When the hydrotreating is preformed in advance as described above, the light oil obtained in the subsequent atmospheric distillation step can further be separated to produce products such as gasoline and gas oil as described in column 4, lines 18-27. This is teaching away from the claimed invention. The invention is directed to producing gas turbine fuel, and not further fractionation of the fuel into gasoline and fuel oil. Also, in contrast to the above, in the present invention, hydrotreating is not performed first on the heavy oil matter (corresponding to the heavy fraction in the aforesaid cited reference) that is crude oil, but a separation step is selected

from the group consisting of vacuum distillation, solvent deasphalting, thermal cracking, and steam distillation is performed, and then the hydrotreating is performed on the light oil matter obtained in the separation step to produce the gas turbine fuel oil.

As for claim 14, Morel does not disclose or suggest that the deasphalting step separates light oil matter from heavy oil matter. The reference teaches away from the deasphalting step as being a separation step because Morel prefers to mixed the vacuum distillate with the deasphalted residue. As for claim 15, the reference does not disclose a second hydrotreating step of the heavy oil matter.

For all of the foregoing reason, the Examiner has not shown that the invention recited by claims 13-15 are *prima facie* obvious over the combined teachings of Morel. Accordingly, it is respectfully requested that the rejection of claims 13-15 be reconsidered and withdrawn.

Rejection over Beuther

Claims 16 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Beuther et al. (U.S. Patent No. 2,945.803). According to the Examiner, the "Beuther reference discloses a process for converting a hydrocarbon" which "...comprises contacting an atmospheric distillation residue with hydrogen and catalyst in a hydrotreating zone thereby producing a hydrotreated oil." Further according to the Examiner, the "hydrotreated oil is further distilled to produce a light oil and a heavy oil." However, the Examiner concedes that the "Beuther reference does not disclose the fuel oil characteristics or yield" and that the reference "does not disclose that the second distillation is a vacuum distillation." Despite these deficiencies, the Examiner concludes that "[i]t would have been obvious to one having ordinary

skill in the art at the time the invention was made to have produced an oil having the claimed characteristic and yield because the converted hydrocarbons consist of a wide boiling range of materials" and that the "disclosed separations would necessarily produce products of various characteristics and it is within the level of ordinary skill to recover any fraction that is suitable for the desired purpose." The Examiner further concludes that "[i]t also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Beuther by vacuum distilling the hydrotreated oil because one would choose conditions that produce the desired product in the most efficient manner."

Claim 16 requires the step of subjecting atmospheric residue oil, obtained by atmospheric distillation of crude oil and/or heavy oil, to hydrotreating with pressurized hydrogen in the presence of a catalyst to remove impurities and then cracking a part of a heavy oil matter to form a gas turbine fuel oil having the following properties: 4 cSt or less in viscosity at 100 °C, containing alkaline metal in an amount of 1 ppm or less, lead in an amount of 1 ppm or less, V in an amount of 0.5 ppm or less, Ca in an amount of 2 ppm or less and sulfur in an amount of 500 ppm or less, and being produced with yields of 40% or more based on said heavy feed oil.

The Beuther process comprises the steps of (i) distilling crude petroleum into a light fraction and a undistilled residue, (ii) subjecting the undistilled residue to hydrotreating, and (iii) distilling the effluent from the hydrotreating step into another light fraction and another undistilled residue. Beuther does not disclose or suggest that the light fractions produced from the two distilling processes are gas turbine fuels, let alone teach that such fractions have the

properties required by claim 16. Furthermore, there is no suggestion by Beuther as to how to obtain the gas turbine fuel oil with high yields from the heavy oil as a starting material.

Claim 17 requires that (i) the separation step separate the heavy oil matter produced in the hydrotreating step into a light oil matter and a heavy oil matter, and (ii) the light oil matter produced in the separation step being used as the turbine fuel oil. Beuther does not disclose or suggest that the light fractions produced by his process is a gas turbine fuel oil, let along teach that the claimed properties of the fuel oil produced.

For the foregoing reasons, the Examiner has not shown that the invention recited by claims 16 and 17 is *prima facie* obvious over the combined teachings of Beuther et al. Accordingly, it is respectfully requested that the rejection of claims 16 and 17 be reconsidered and withdrawn.

Rejection over JP 06207179

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Japanese abstract JP 06207179A in view of admitted prior art. According to the Examiner, the Japanese reference "does not explicitly disclose the power generation method ...." However, the Examiner asserts that Applicants' admit on pages 1 and 2 of the specification "that the power generation steps of claim 19 are known. From this finding, the Examiner concludes that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the fuel oil of JP 062071 79A in the known power generation steps because the fuel oils of the reference are typically used in power generation" and that "the fuel oil of JP

062071 79A would be expected to be an effective fuel for generating power." Applicants respectively traverse this rejection.

Claim 19 is directed to a method of generating power and requires driving a gas turbine using gas turbine fuel oil defined in claim 18 and using high-temperature exhaust gas discharged from the gas turbine as a heat source for a waste heat recovery boiler to generate steam to drive a steam turbine. The Examiner admits that the Japanese abstract does not disclose or suggest the power generation method set forth in claim 19. In particular, the abstract does not disclose or suggest using a gas turbine fuel composition having the properties set forth in independent claims 1, 6, 13 and 16 (claim 18 is dependent on claims 1, 6, 13 and 16). The admitted prior art relied on by the Examiner appears to be the disclosure in the paragraph bridging pages 1 and 2 of the specification. This disclosure does not disclose that a gas turbine fuel oil is used or that the gas turbine fuel produced in accordance with the claimed invention is used to drive the turbine. The disclosure refers to natural gas, and not a fuel from petroleum is used to drive the gas turbine.

For the foregoing reason, the Examiner has not shown that the invention recited by claim 19 is *prima facie* obvious over the combined teachings of the Japanese abstract. Accordingly, it is respectfully requested that the rejection of claim19 be reconsidered and withdrawn.

New Claim 20

New claim 20 has been added and is similar to claim 9, but specific to the limitations set forth in claim 3. The new claim is dependent on claim 3 and is directed to a method as defined in claim 3, wherein the heavy oil matter produced in the second separating step is used as fuel oil

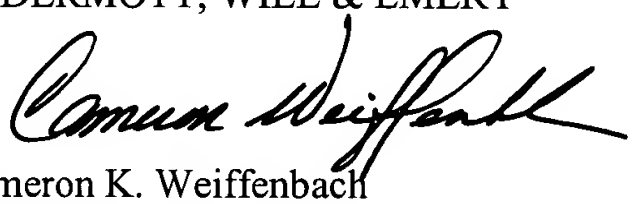
for a boiler. None of the prior art references relied upon by the Examiner discloses or suggest using the heavy oil matter as fuel oil for a boiler.

For the foregoing reasons, it is submitted that the claims 1-20 are patentable over the teachings of the prior art relied upon by the Examiner. Accordingly, favorable reconsideration of the claims is requested in light of the preceding amendments and remarks. Allowance of the claims is courteously solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT, WILL & EMERY



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